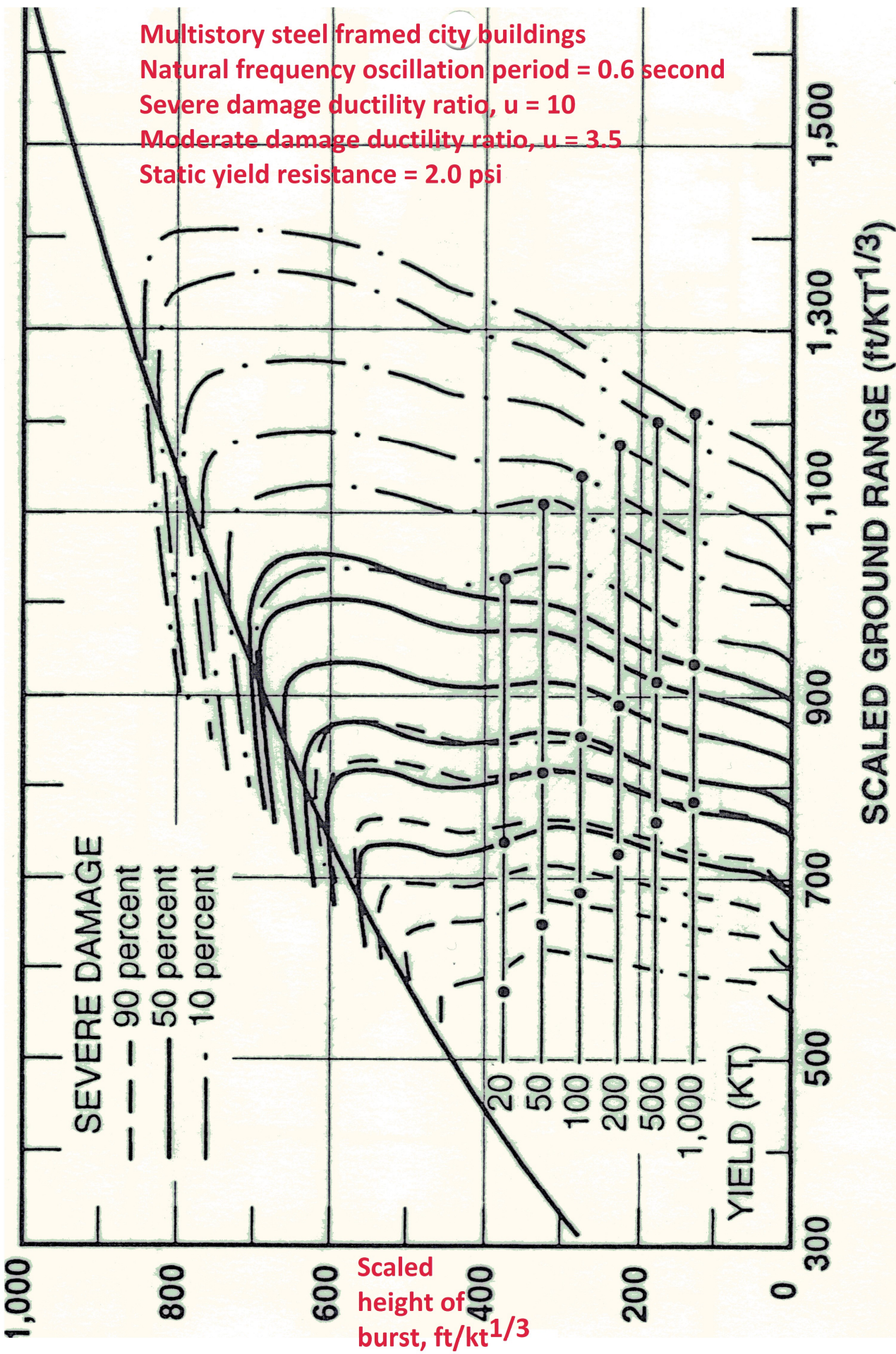


Figure 15.20. Moderate and Severe Isodamage Curves for Structure Category 15.2.12 for Yields Ranging From 20 KT to 1,000 KT.



Multistory steel framed city buildings
 Natural frequency oscillation period = 0.6 second
 Severe damage ductility ratio, $u = 10$
 Moderate damage ductility ratio, $u = 3.5$
 Static yield resistance = 2.0 psi

Figure 15.18. Moderate and Severe Isodamage Curves for Structure Category 15.2.10 for Yields Ranging From 20 KT to 1,000 KT.

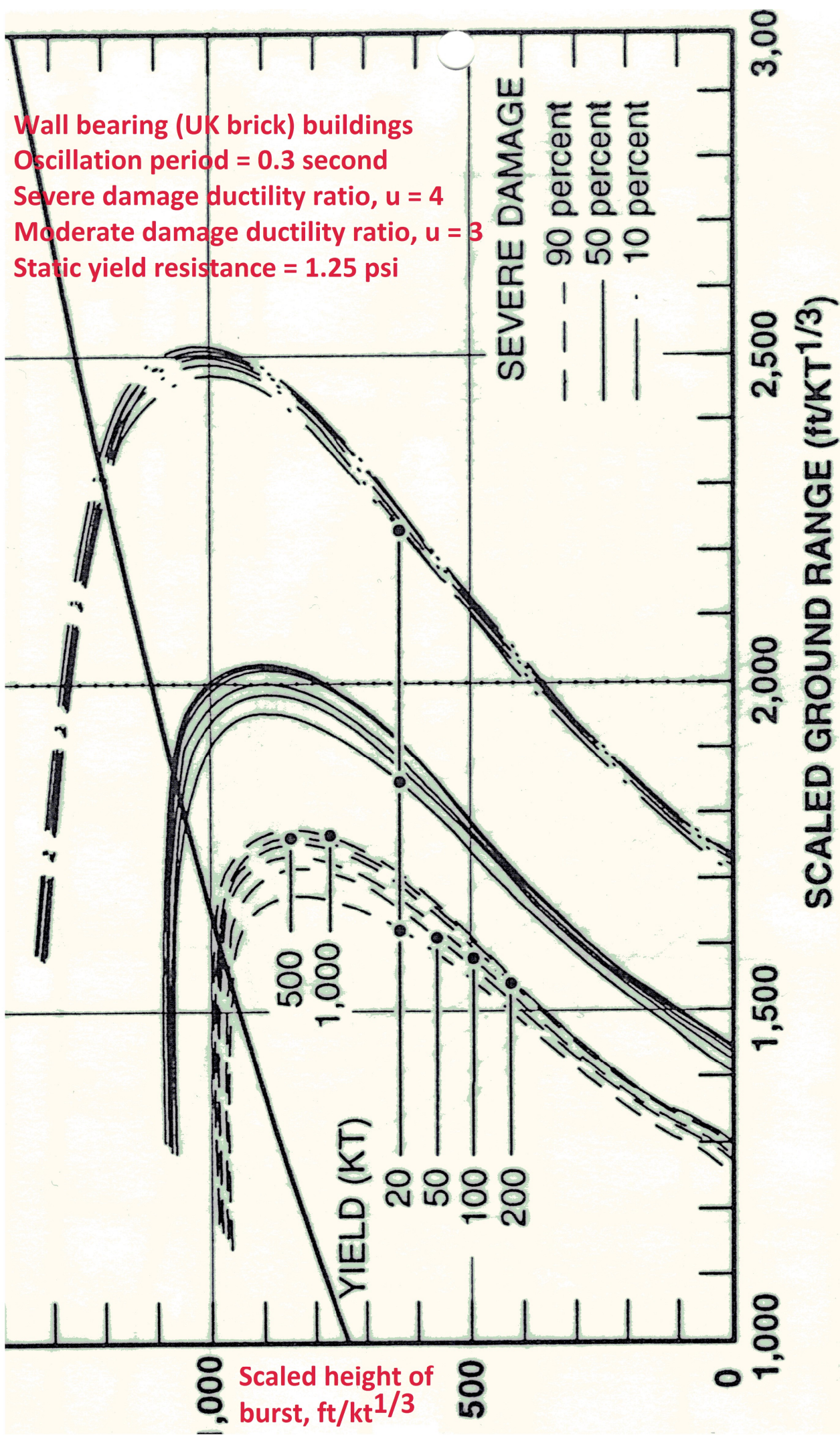


Figure 15.11. Moderate and Severe Isodamage Curves for Structure Category 15.2.3 for Yields Ranging From 20 KT to 1,000 KT.

4500 psi concrete strength. Fig 15.60 for a vertical silo (tunnel) shows 50% severe damage occurs at 1000 ft for 1 Mt ($R/T = 10$)

Data from two underground tests of different yields, converted to surface bursts on the assumption that the ground shock/cratering coupling for the surface burst is 5% that for underground bursts (Northrop, 1996, p552)

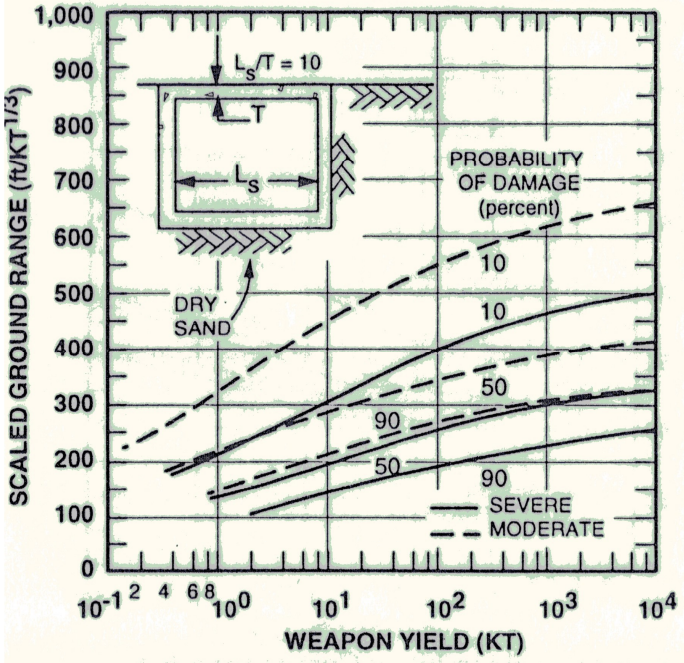


Figure 15.43. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 10$ (Structure Category 15.3.11) Surface-Flush in Dry Sand.

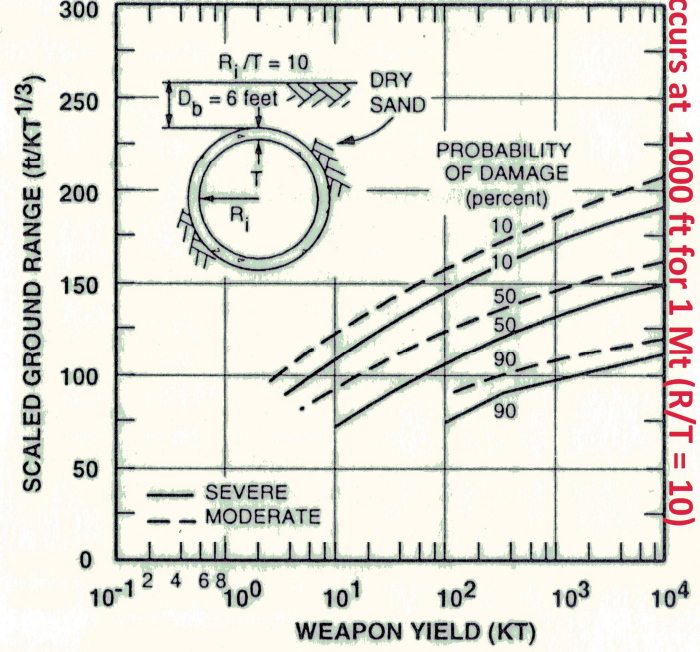


Figure 15.52. Vulnerability Curves for a Horizontal Cylinder, Aspect Ratio $R_i/T = 10$ (Structure Category 15.3.18) Buried in Dry Sand.

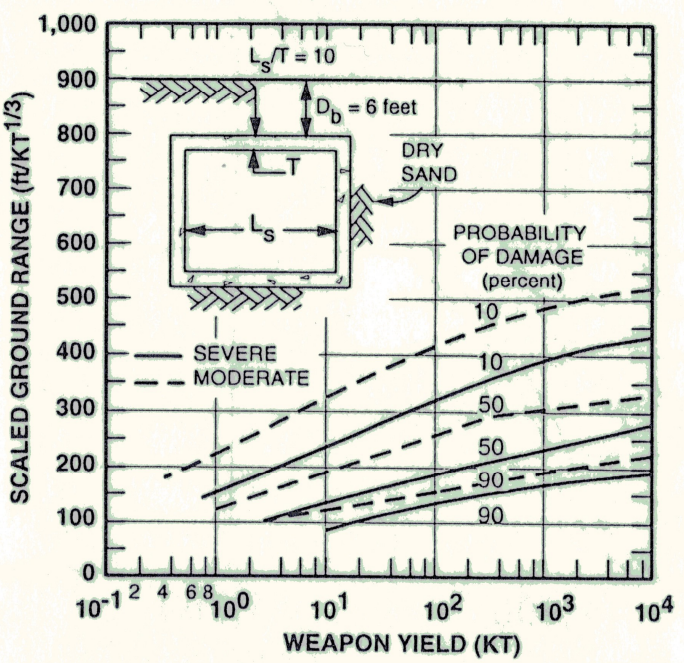


Figure 15.35. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 10$ (Structure Category 15.3.3) Buried in Dry Sand.

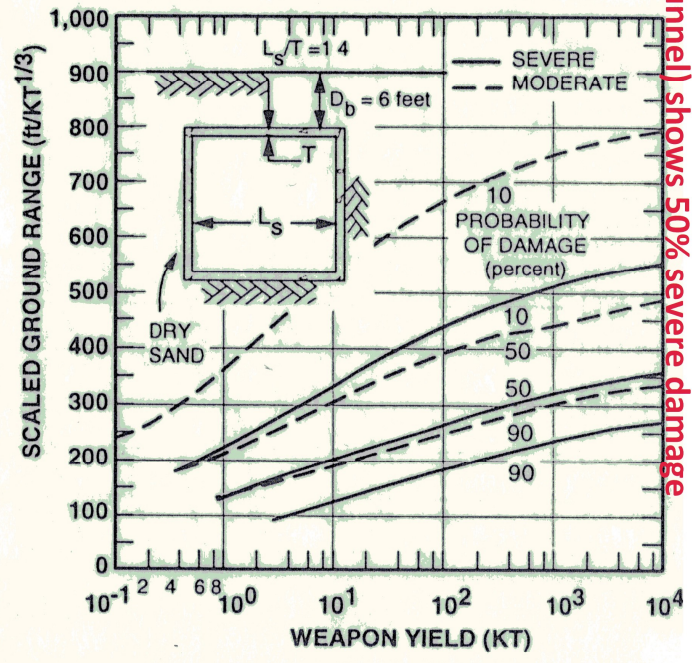


Figure 15.36. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 14$ (Structure Category 15.3.4) Buried in Dry Sand.